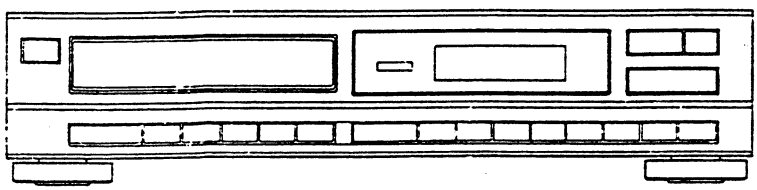
SERVICE MANUAL

COMPACT DISC PLAYER

MODEL: UCD210/310R



CAUTION

1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

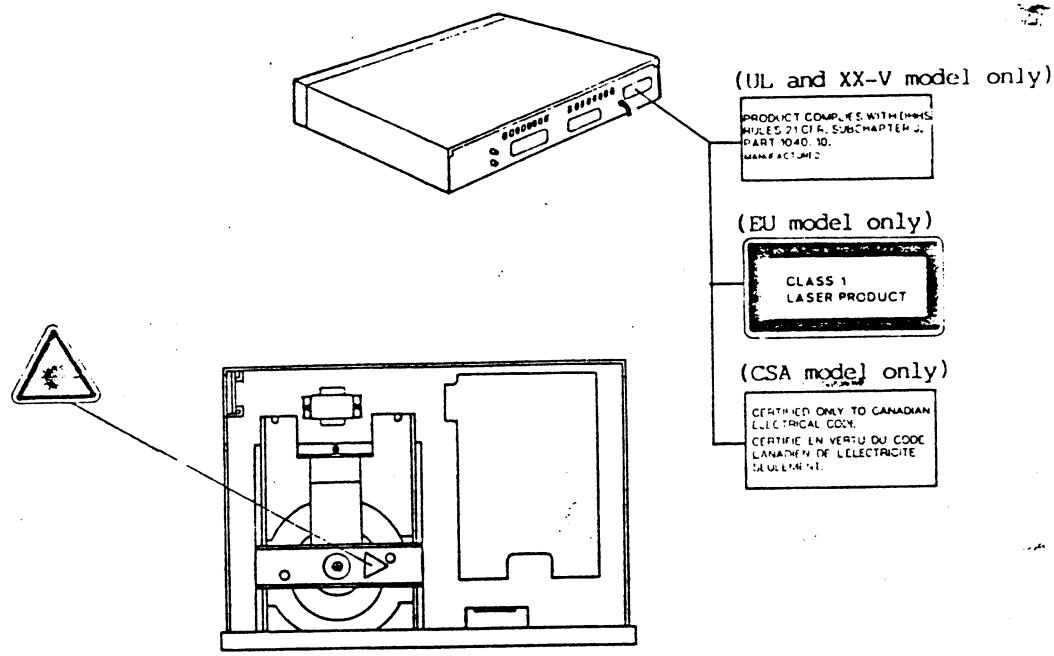
Specifications

Format	Compact disc, digital audio
Pick-Up	3-beam, semiconductor laser
No. of channels	2 channels (Stereo)
Decoding (D/A)	18-bit dual
Frequency response	20Hz~20KHz
Total harmonic distortion	Less than 0.08% (1KHz)
Signal-to-noise ratio	
S/N (W/O IEC-A)	Better than ≥90 dB
Signal-to-noise ratio (S/N)	Better than 95 dB
Dynamic range	Better than 89 dB
Wow and flutter	Below measurable limit
Output voltage/load impedance	
Output	2V/47k ohms
Power requirements	AC 120V/220V/240V, 50/60Hz
For U.S.A. & Canade	AC 120V, 60Hz
For Europe	AC 230V, 50Hz
Power consumption	14.5 watts
Dimensions	435 mm (W)
	80 mm (H)
	283 mm (D)
Weight	3.4 Kg

* Design and specifications subject to changes without notice for improvements.

Caution Concerning Handling of The Laser

The following label has been affixed to the unit. listing the proper procedure for working with the laser beam.



■ Cautions When Removing The Laser Pick-up For Repairing

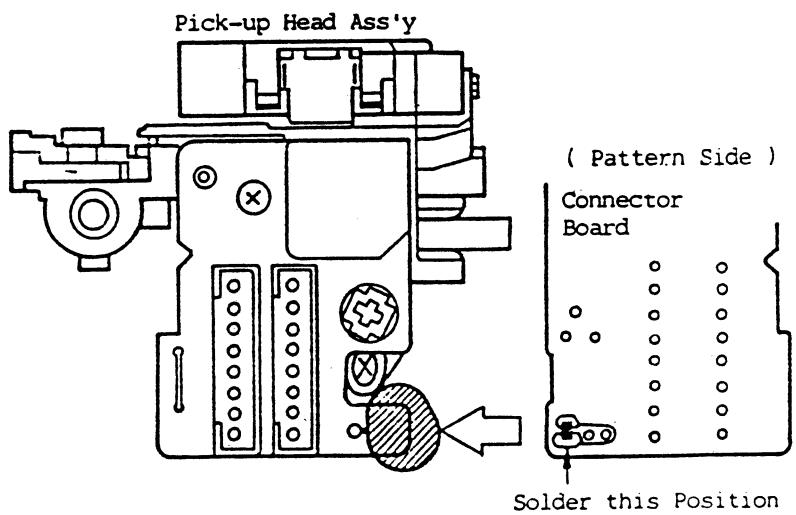
Before removing the laser pick-up, short-circuit the terminals by soldering. This is to prevent damage to the pick-up during removal operation.

1. Solder the pick-up terminals.
2. Detach 2 lead connectors.

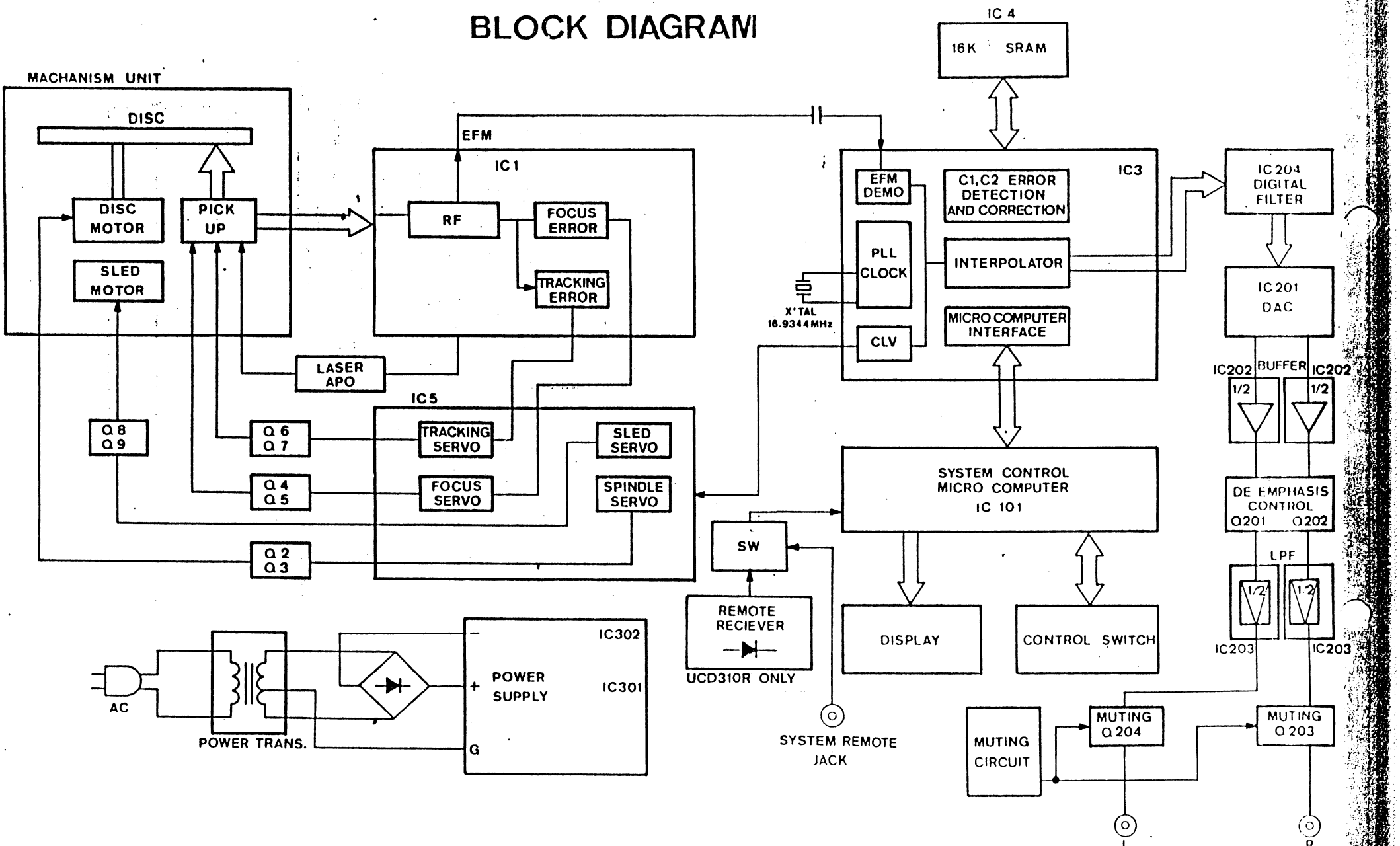
■ Cautions When Replacing The Laser Pick-up

1. Insert the 2 pick-up lead connectors into the connector PCB.
2. Detach the short-circuited pick-up terminal soldering.

* The terminal is factory sldered for protection, so use the same procedure when replacing the pick-up when a new one.

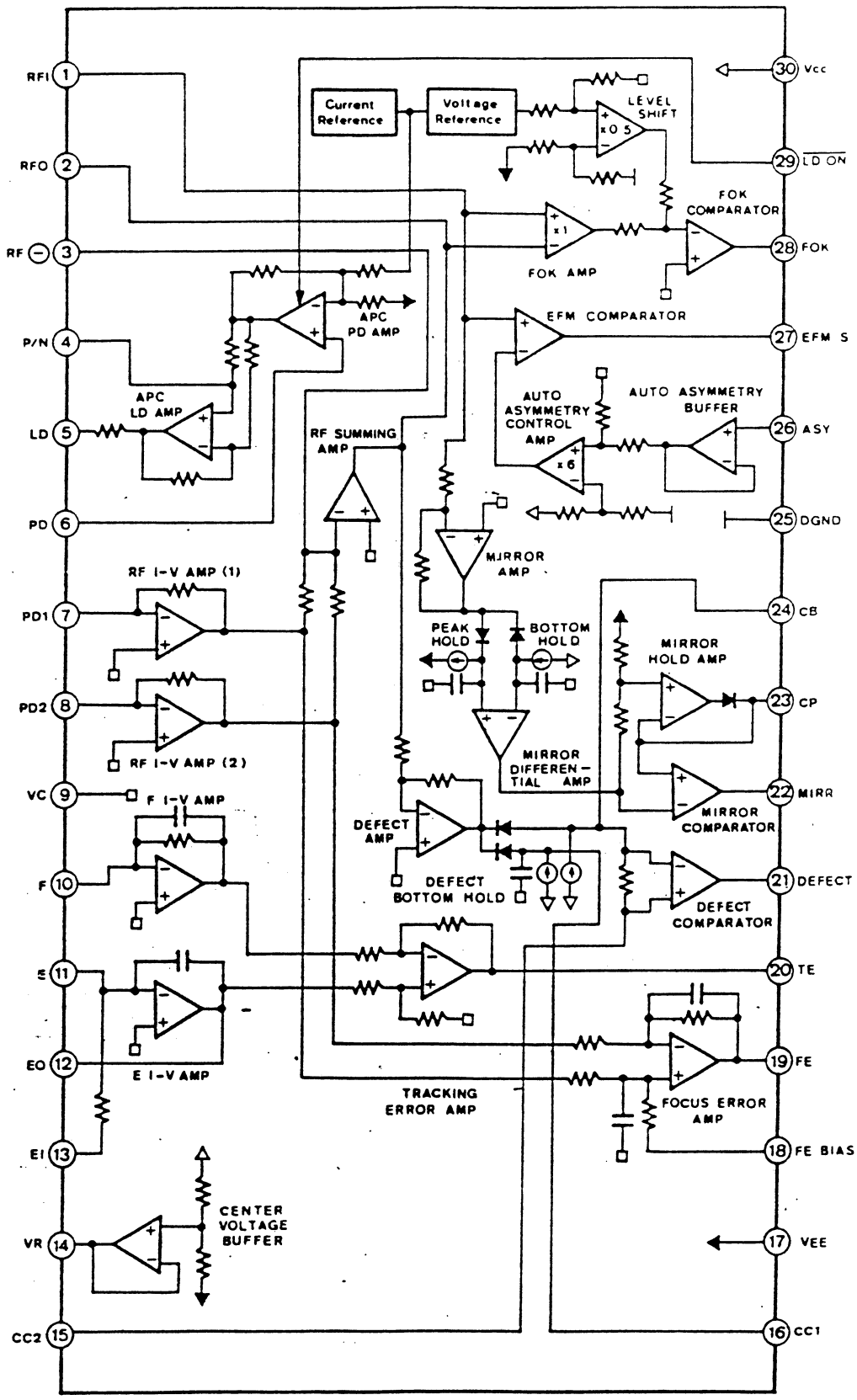


BLOCK DIAGRAM

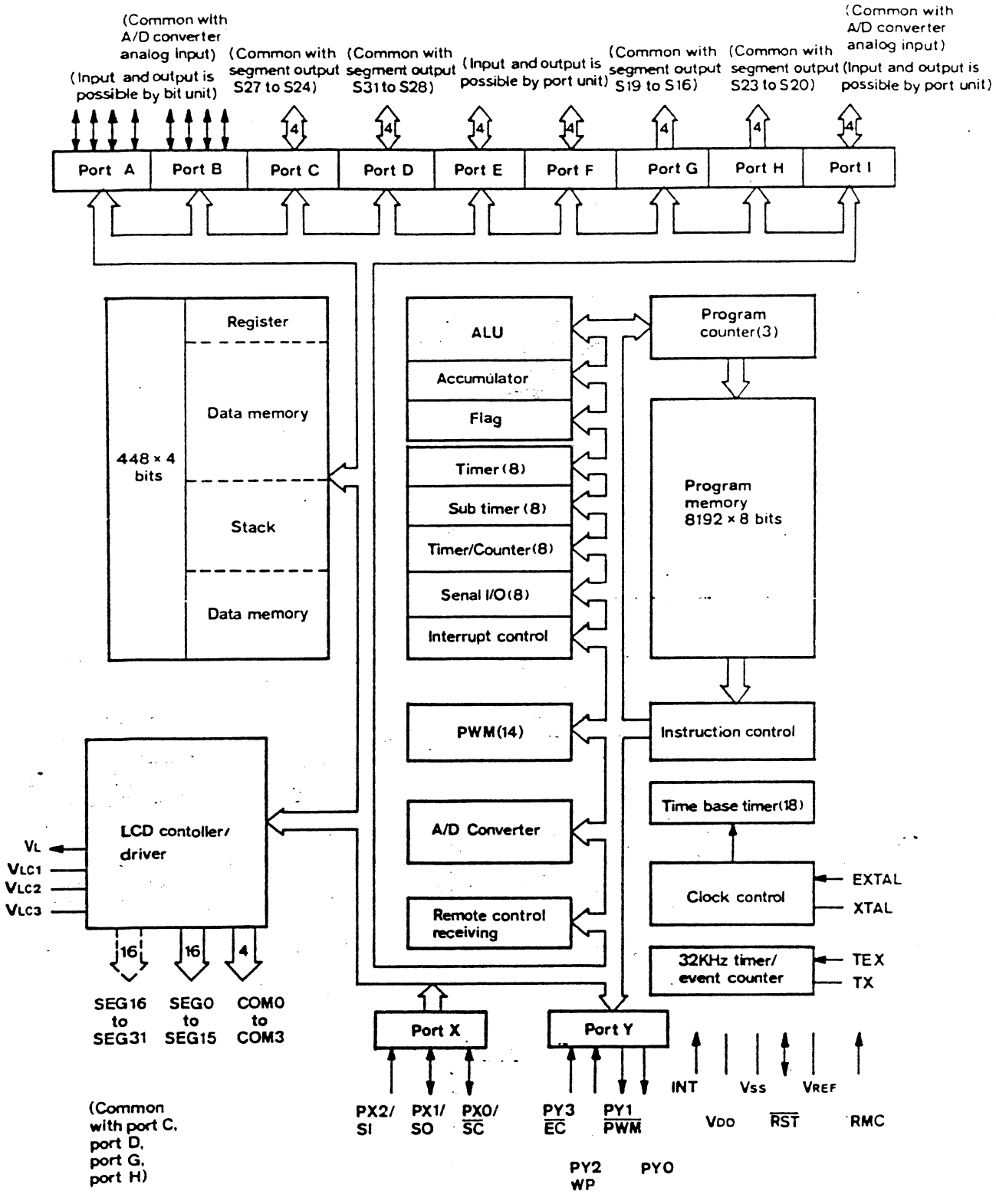


IC BLOCK DIAGRAM

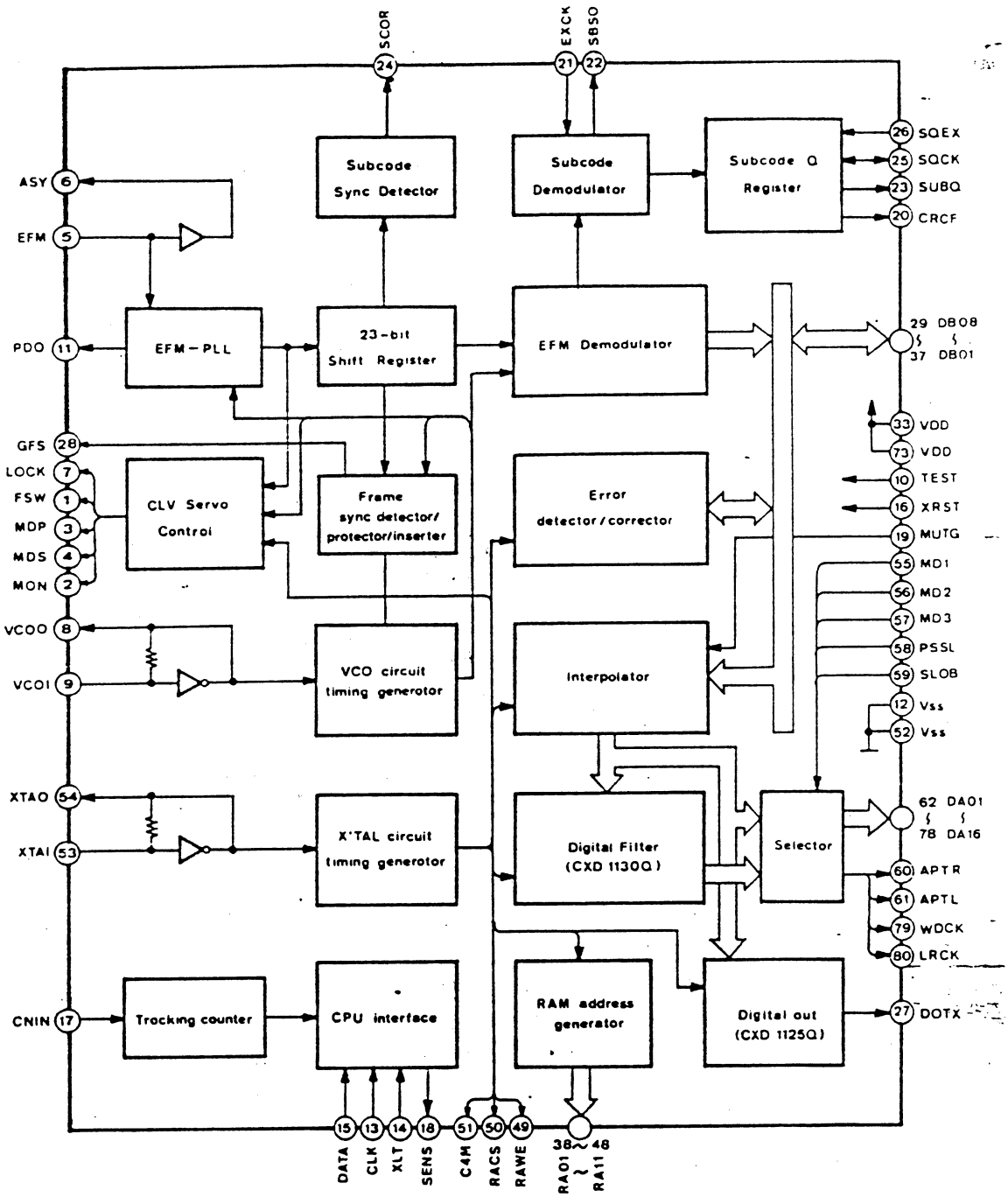
CXA1081S (RF Amplifier)



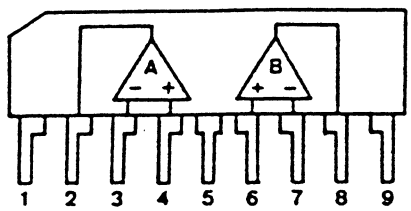
CXP 5078H508Q (Micro Control)



CXD 1130Q/CXD1125Q (Digital Signal Processor)

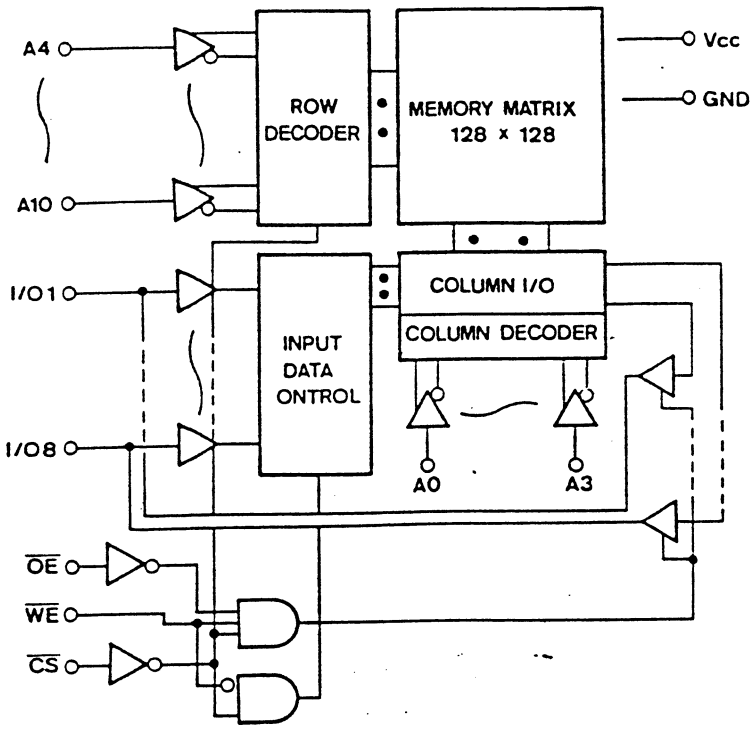


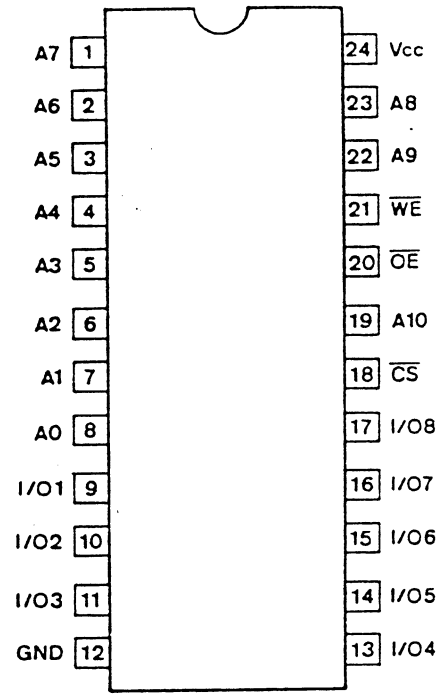
M4558S (ANALOG FILTER)



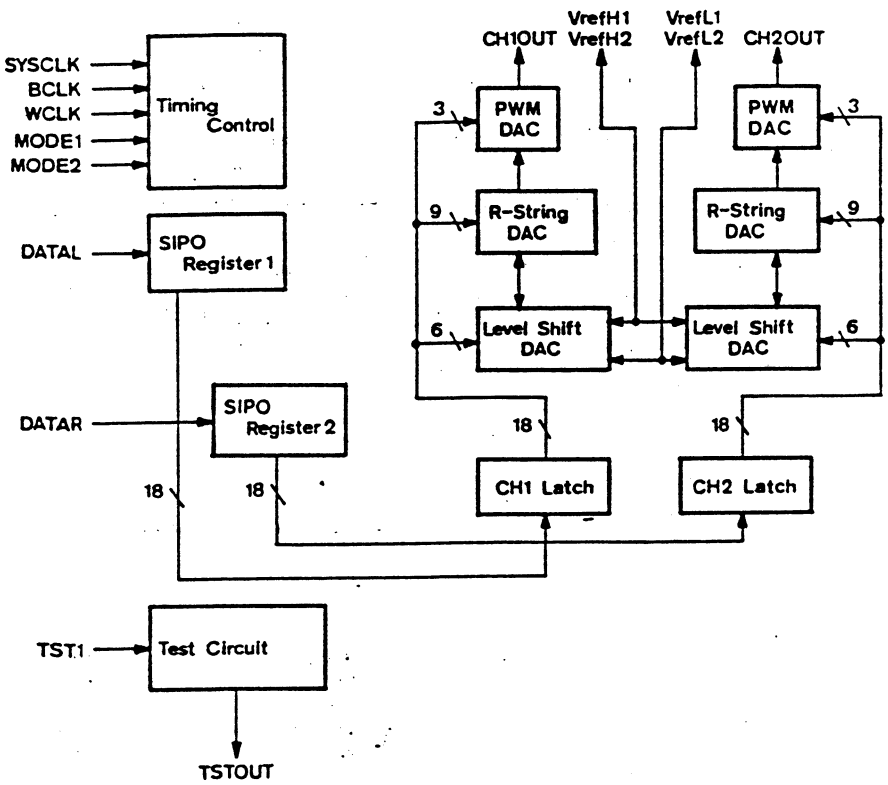
1 V+
2 A OUTPUT
3 A– INPUT
4 A+ INPUT
5 V–
6 B+ INPUT
7 B– INPUT
8 B OUTPUT
9 V+

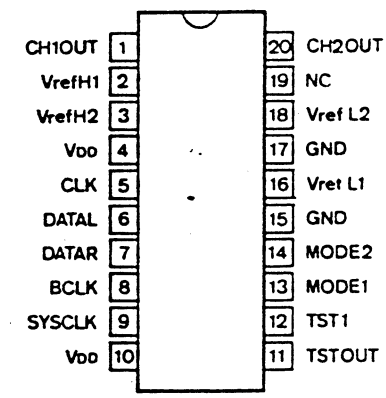
UM 6116 / CXK5816PN (SRAM)



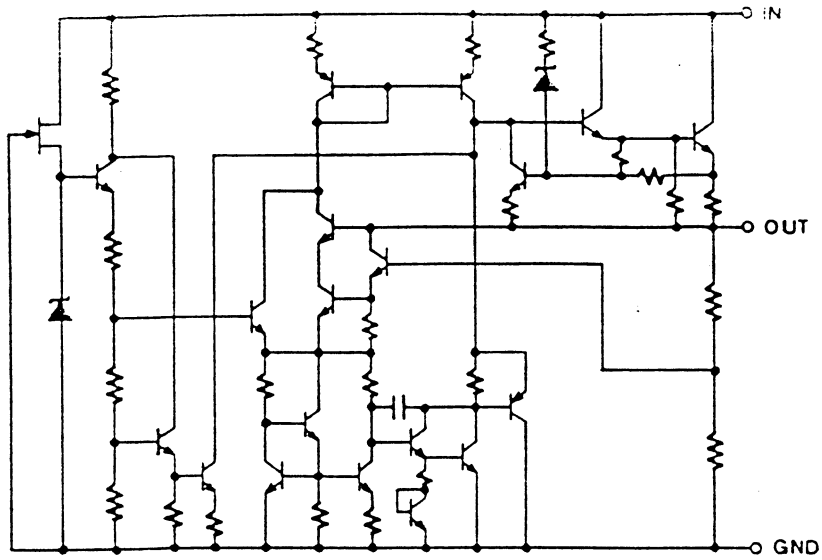


LC 78820 (D-A Converter)

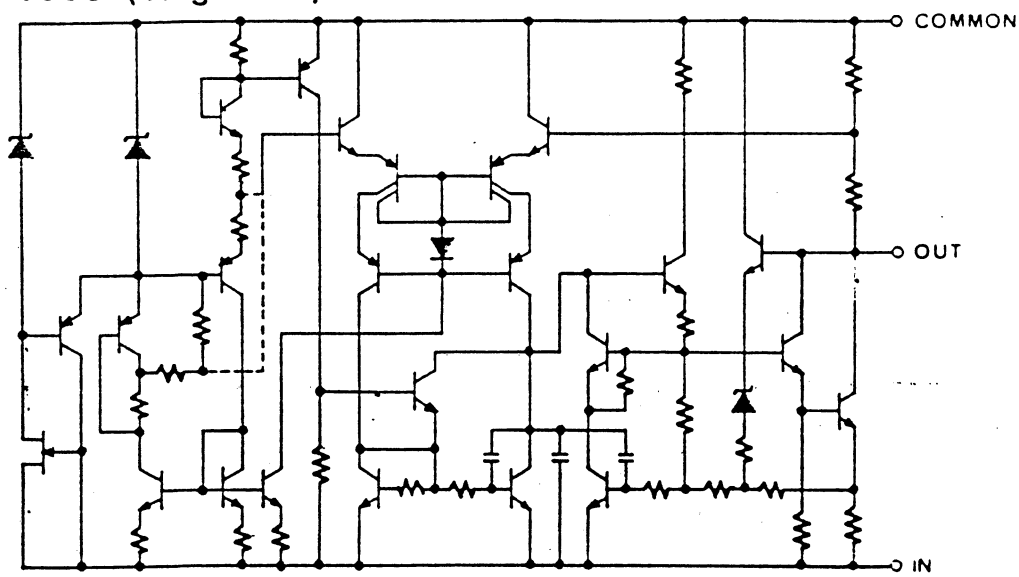




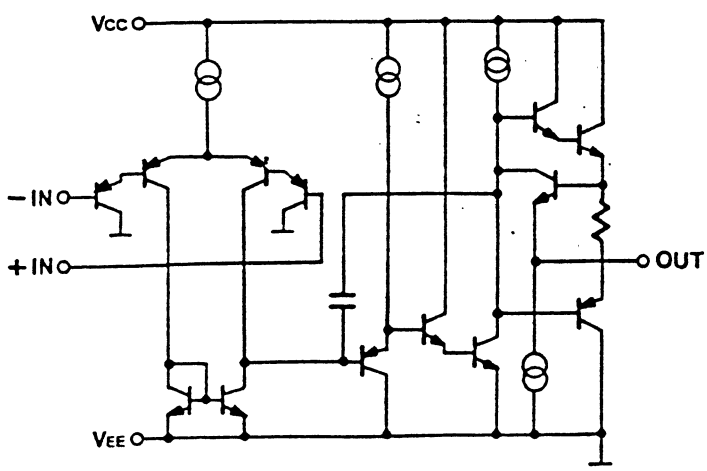
78005AP (Regulator)

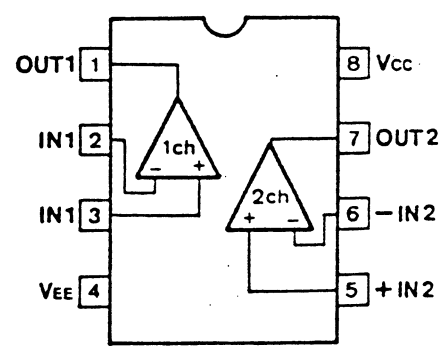


7905 (Regulator)

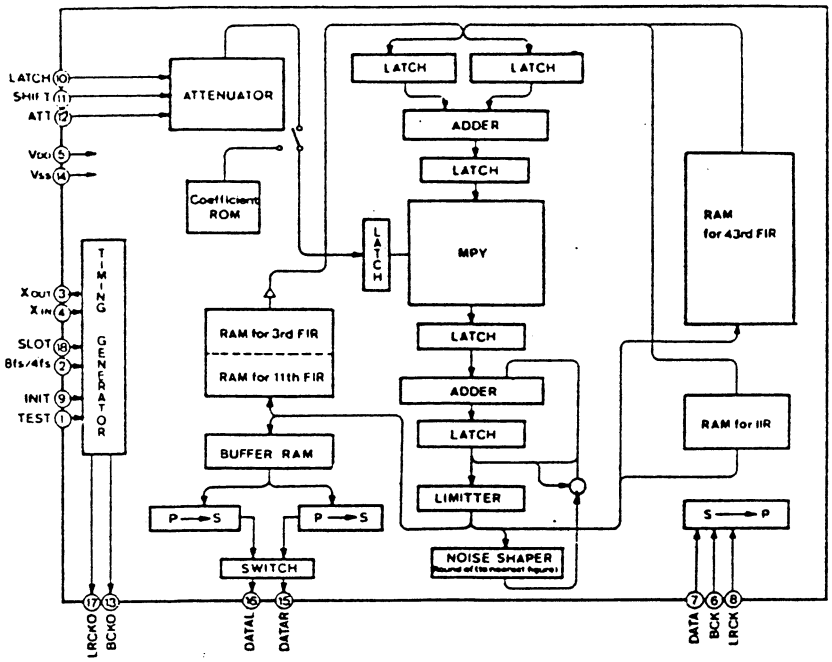


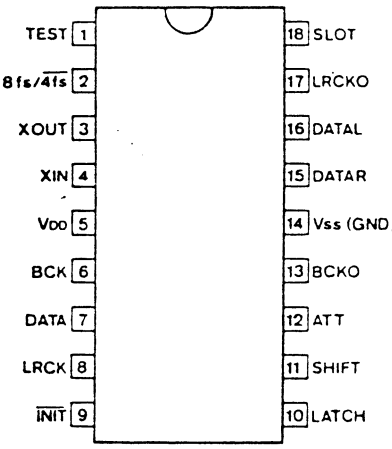
BA 10358F (APC)



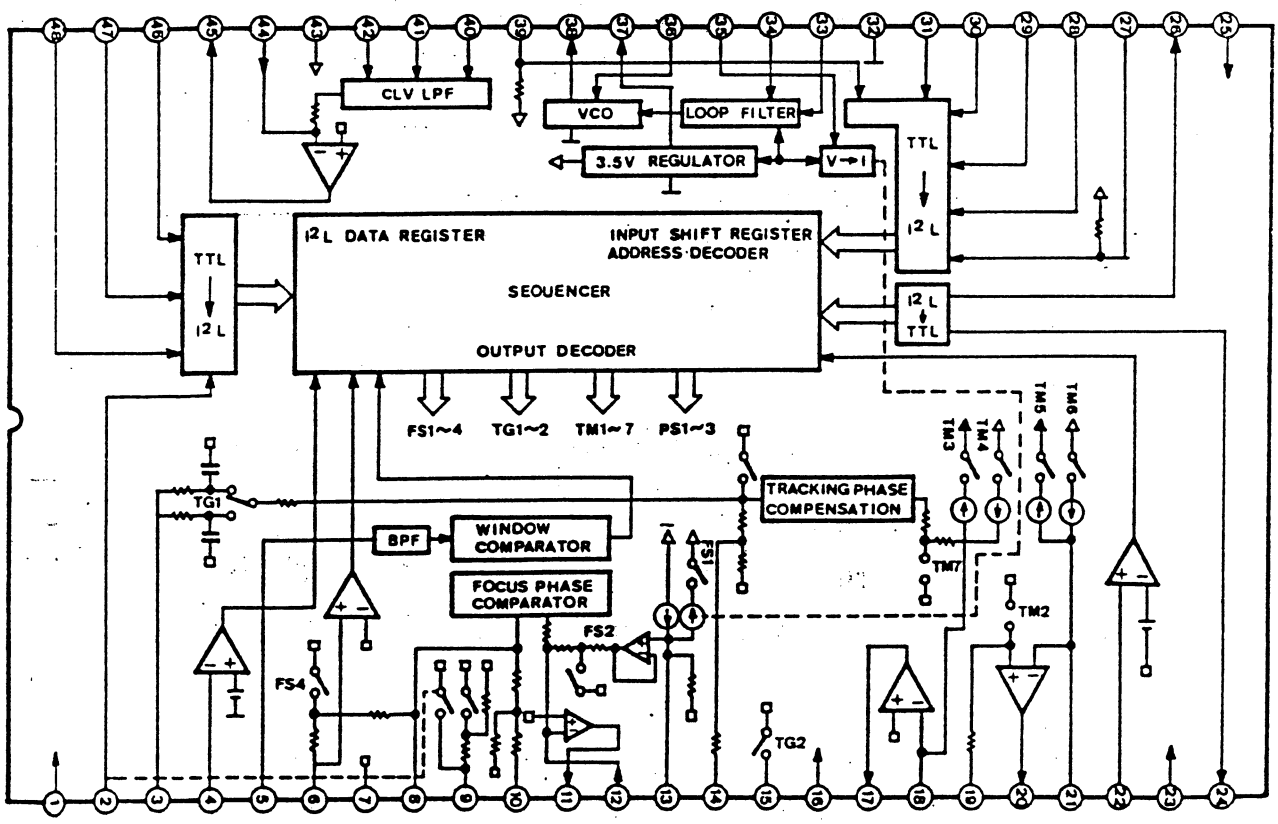


CXD2551P (Digital Filter)

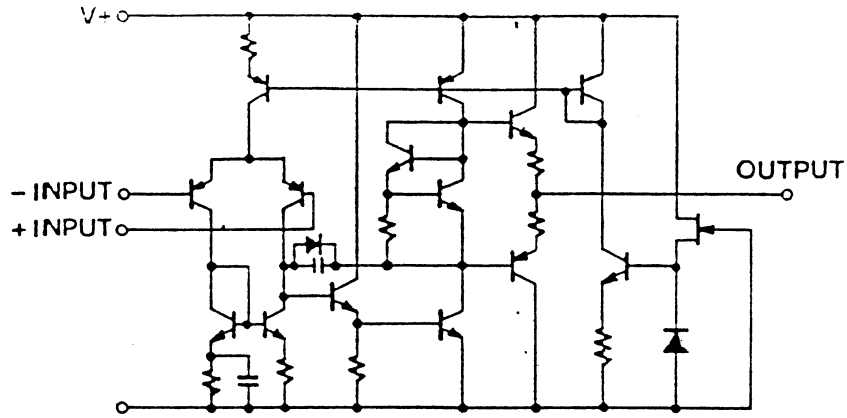




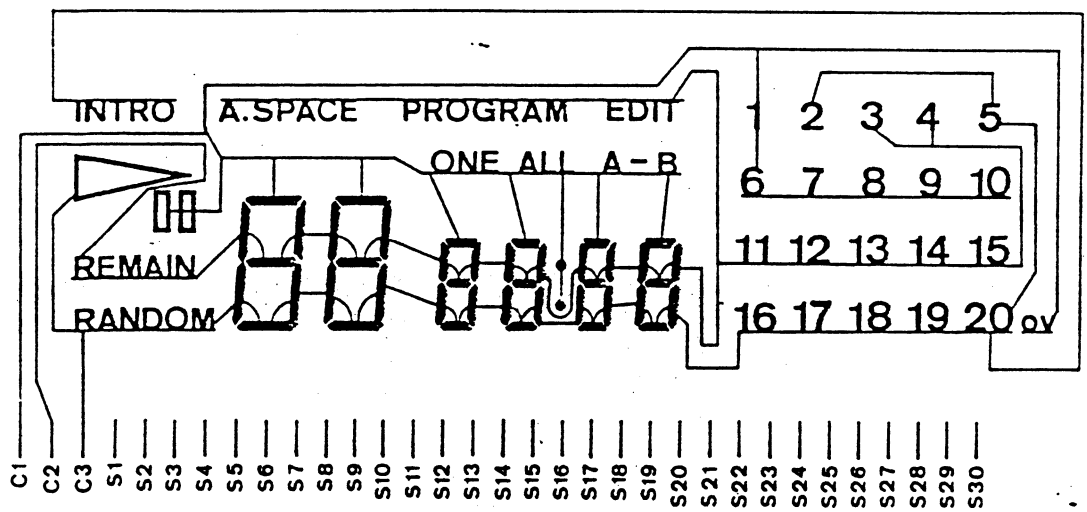
CXA1082 (Servo Signal Processor)

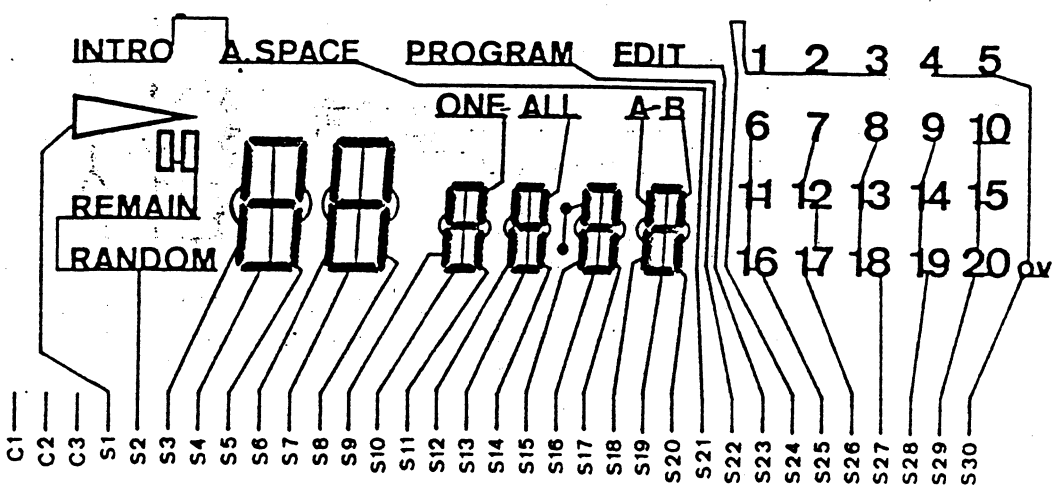


NJM4565 (Dual OP. Amp.)

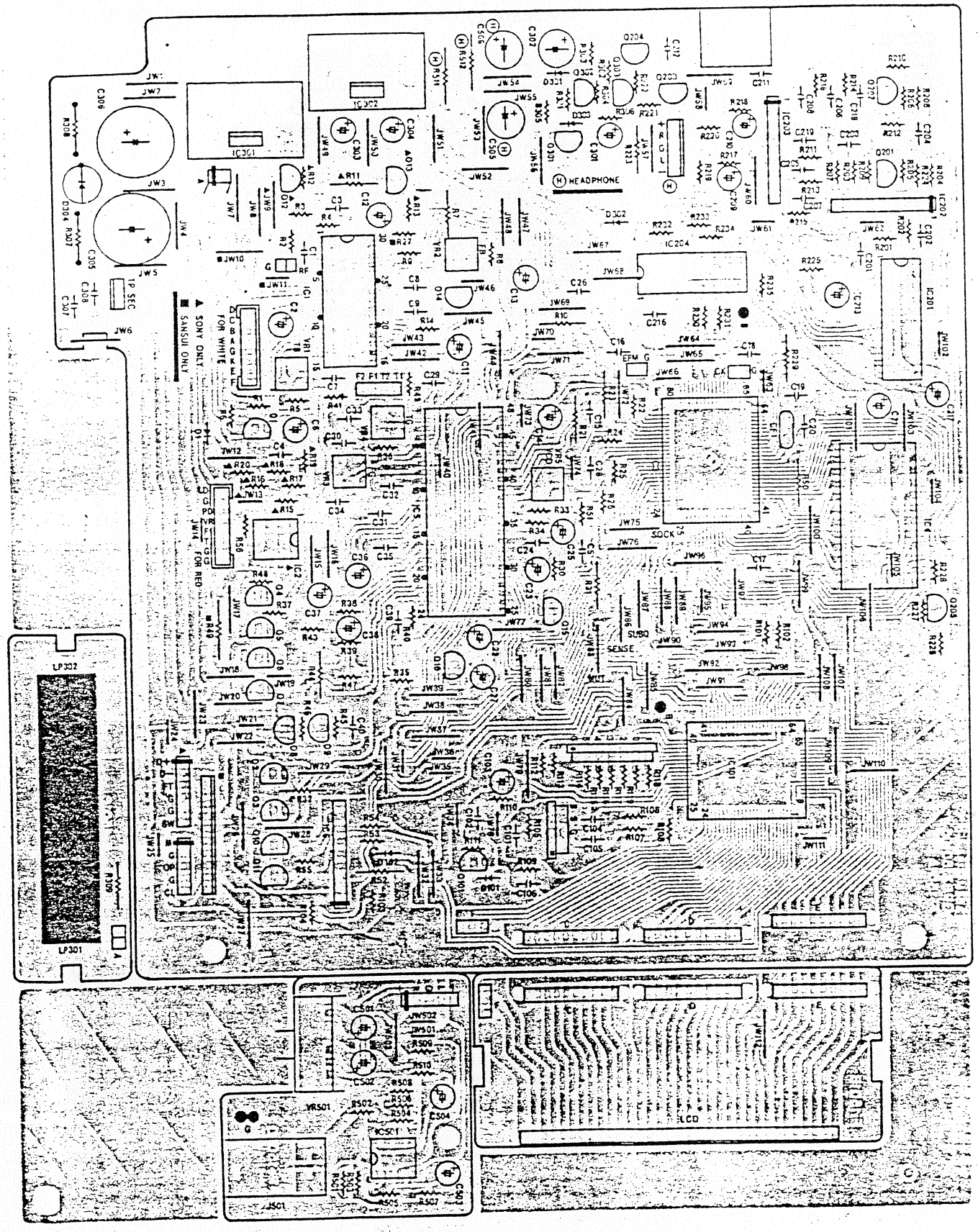


LC DISPLAY





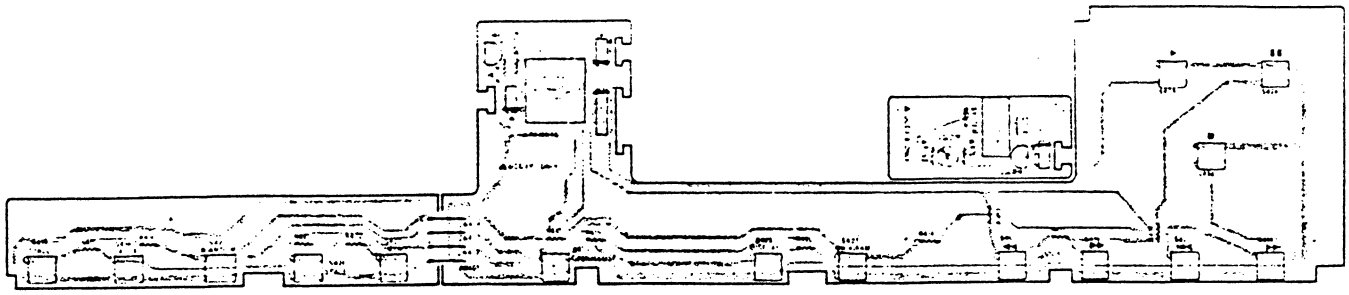
PARTS LOCATION OF P. C. BOARD



Parts No.	Parts cord	Description	
	5GPBZ150105000	Main P. C. Board (F-1501A)	
IC'S			
IC1	5EICCXA1082lS0	CXA 1081S	
IC2	5EICBA10356800	BA 10358	
IC3	5EICCXD11225Q0	CXD 1125Q	
IC4	5EICCXK58186PN	CXK 5816PN	
IC5	5EICCXA10822BS	CXA 1082BS	
IC6	5EICNJM45548S0	NJM 4558S	
IC101	5EICCXP507515Q	CXP 5078H515Q	
IC201	5EICLC78823000	LC 78820	
IC202,203	5EICNJM4565S00	NJM 4565S	
IC204	5EICCXD2554lP0	CXD 2551P	
IC301	5EICKIA780905A	KIA 78005AP	
IC302	5EICNJM79025F0	NJM 7905F	
Transistor			
Q1,2,5,6,8,11	5ESCA0952C30I0	2SA 952M/L	
Q3,4,7,9,10,101	5ESCC2001C6LI0	2SC 2001C/L	
Q13,14,201,202,203,204,302	5ESCC1740S4RI0	2SC 1740S	
Q15,16	5ESKC114Y76000	DTC 114YS	
Q12,205,301,303	5ESCA0933S1RI0	2SA 933SR	
Diode			
D1,101,102,301,302,303	5EDSS133124000	1SS133T77	
D304	5ERBW005D02000	W 005	
VR1,3,4	5ERH204A107000	20 KA	
VR2	5ERH104A100000	10 KA	
VR5	5ERH203A106000	2 KA	
CF1	5ECF1693440000	16.9344M	
C3,19,20	5ECC151IFI9000	15 pF	CERAMIC CAP
C5	5ECC102IFI5000	100 pF	CERAMIC CAP
C207,208	5ECC332IFI8000	330 pF	CERAMIC CAP
C30	5ECC472IFI7000	470 pF	CERAMIC CAP
C28,211,212	5ECC103JFI0000	102 pF	CERAMIC CAP
C29,34	5ECC473JFI2000	472 pF	CERAMIC CAP
C39,104,105,106	5ECC104FFI6000	103 pF	CERAMIC CAP
C4,307,308	5ECC224FFI9000	223 pF	CERAMIC CAP
C17,18,26,101,102,216	5ECC105LDI0000	104 pF	CERAMIC CAP
C205,206,218,219	5ECP153JFI9000	152 pF	MYLAR CAP
C1	5ECP333JFI7000	332 pF	MYLAR CAP
C8	5ECP104JFI5000	103 pF	MYLAR CAP
C16	5ECP224JFI8000	223 pF	MYLAR CAP
C7,9,15,31	5ECP334JFI8000	333 pF	MYLAR CAP
C33,203,204	5ECP474JFI7000	473 pF	MYLAR CAP
C32,35,40,201,202	5ECP105JFI6000	104 pF	MYLAR CAP
C13,14	5ECE475F6I1000	0.47 uF/50V	ELECT CAP
C22	5ECE106F6I0000	1 uF/50V	ELECT CAP
C103	5ECE226F6I3000	2.2 uF/50V	ELECT CAP

Parts No.	Parts cord	Description		
C36	5ECE336F6I3000	3.3 uF/50V		ELECT CAP
C23,209,210,301	5ECE476D6I8000	4.7 uF/25V		ELECT CAP
C38	5ECE107D6I7000	10 uF/25V		ELECT CAP
C2,6,11,12,21,25,27,37,303, 304	5ECE108B6I4000	100 uF/10V		ELECT CAP
C213,217	5ECE228B7I0000	220 uF/10V		ELECT CAP
C302	5ECE228C8I0100	220 uF/16V		ELECT CAP
C305,306	5ECE229CIC8100	2200 uF/16V		ELECT CAP
C24	5ECQ473LCI2000	472 pF		
R6	5ERJ22106I0000	22 ohm	1/6W	RESISTOR
R56	5ERJ91106I6000	91 1/6W	1/6W	RESISTOR
R207,208,225,230,231,232, 233,234	5ERJ33206I1000	330	1/6W	RESISTOR
R46,47,48	5ERJ47206I0000	470	1/6W	RESISTOR
R219,220	5ERJ82206I3000	820	1/6W	RESISTOR
R1,9,19	5ERJ10306I9000	1 K	1/6W	RESISTOR
R106,203,204	5ERJ12306I5000	1.2 K	1/6W	RESISTOR
R107,108,109	5ERJ15306I4000	1.5 K	1/6W	RESISTOR
R211,212	5ERJ22306I2000	2.2 K	1/6W	RESISTOR
R33	5ERJ33306I2000	3.3 K	1/6W	RESISTOR
R2	5ERJ39306I0000	3.9 K	1/6W	RESISTOR
R41,42,112,113,114,115,116, 117,118,119,205,206,214, 215,221,222,228	5ERJ47306I1000	4.7 K	1/6W	RESISTOR
R213,216	5ERJ51306I0000	5.1 K	1/6W	RESISTOR
R16	5ERJ56306I5000	5.6 K	1/6W	RESISTOR
R3,302	5ERJ82306I4000	8.2 K	1/6W	RESISTOR
R13,35,51,101,102,103,104, 105,110,227,235	5ERJ10406I0000	10 K	1/6W	RESISTOR
R8	5ERJ15406I5000	15 K	1/6W	RESISTOR
R4	5ERJ18406I4000	18 K	1/6W	RESISTOR
R5,22,30,217,218,304,305,306	5ERJ22406I3000	22 K	1/6W	RESISTOR
R43	5ERJ33406I3000	33 K	1/6W	RESISTOR
R12,14,226,301,303	5ERJ47406I2000	47 K	1/6W	RESISTOR
R24,25,26,37,38,53,54,111,224	5ERJ10506I1000	100 K	1/6W	RESISTOR
R34,45,55	5ERJ12506I7000	120 K	1/6W	RESISTOR
R39	5ERJ27506I9000	270 K	1/6W	RESISTOR
R18,20	5ERJ33506I4000	330 K	1/6W	RESISTOR
R17,36,209,210	5ERJ47506I3000	470 K	1/6W	RESISTOR
R40	5ERJ51506I2000	510 K	1/6W	RESISTOR
R15	5ERJ22606I5000	2.2 M	1/6W	RESISTOR
R201,202	5ERJ47606I4000	4.7 M	1/6W	RESISTOR
R229	5ERJ33204I5000	330 ohm	1/4W	RESISTOR
R50	5ERJ10304I3000	1 K	1/4W	RESISTOR
R11	5ERJ47304I5000	4.7 K	1/4W	RESISTOR
R44	5ERJ82304I8000	8.2 K	1/4W	RESISTOR
R23,31	5ERJ10404I4000	10 K	1/4W	RESISTOR
R7	5ERJ15404I9000	15 K	1/4W	RESISTOR
R10,32,223	5ERJ10504I5000	100 K	1/4W	RESISTOR
R52	5ERJ12504I1000	120 K	1/4W	RESISTOR
R21	5ERJ10604I6000	1 M	1/4W	RESISTOR

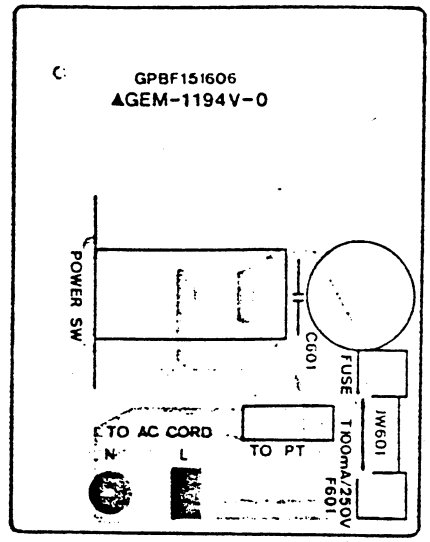
Parts No.	Parts cord	Description
	5EWV0005D04000	JUMP WIRE 5 mm 0.5#
	5EWV0006D01000	JUMP WIRE 10mm 0.6#
	5MEJ1535M05000	JUMP CONNECTOR 3P
	5MEJ1288M02000	ILG-3P PLUG (H)
	5MEJ1758D04000	2P JACK
	5MEC1173D05000	TEST PIN 2P
	5MEC1180D05000	TEST PIN 4P
	5MES1095D07000	HEAT SINK H = 22 mm
	5GUT1013D04000	SILICON TUBE 1#13mm
	5MES1039D09000	HEAT SINK
	2CPXF1501B	DISPLAY P. C. BOARD
	5GDT4002005000	LC DISPLAY
	5EWV0006D01000	JUMP WIRE 10mm 0.6#
	2CPXF1501C	LAMP P. C. BOARD
	5GEL0910026000	LAMP 20 mm 9V .10A
R309	5ERJ47004I2000	4.7 ohm 1/4W RESISTOR



Parts No.		Parts cord	Description		
		5GPBZ151308000	TACT SWITCH P. C. BOARD (F-1513A)		
	▲	5GRR0003D07000	REM-CON REC.		
		5GWP1037D04000	TACT SWITCH		
		5EWV0005D04000	JUMP WIRE 5 mm 0.5#		
Q702	▲	5ESCA0933S1RI0	2SA 933S.R		
R412,419		5ERJ12306I5000	1.2 K ohm	1/6W	RESISTOR
R413,420		5ERJ18306I3000	1.8 K	1/6W	RESISTOR
R417		5ERJ33306I2000	3.3 K	1/6W	RESISTOR
R418		5ERJ82306I4000	8.2 K	1/6W	RESISTOR
R414		5ERJ12406I6000	12 K	1/6W	RESISTOR
R703	▲	5ERJ10406I0000	10 K	1/6W	RESISTOR
R704	▲	5ERJ47406I2000	47 K	1/6W	RESISTOR
		2CPXF1513B	TACT SWITCH P. C. BOARD		
		5GWP1037D04000	TACT SWITCH		
		5EWV0006D01000	JUMP WIRE 10mm 0.6#		
R415		5ERJ12306I5000	1.2 K ohm	1/6W	RESISTOR
R416		5ERJ18306I3000	1.8 K	1/6W	RESISTOR
R421		5ERJ33306I2000	3.3 K	1/6W	RESISTOR
R422		5ERJ82306I4000	8.2 K	1/6W	RESISTOR
		2CPXF1513C	P. C. BOARD		
R701,702	▲	5ERJ47406I2000	4.7 K ohm	1/6W	RESISTOR
J701		5MEJ1840D00000	3.5¢ JACK		
Q701	▲	5ESCC1740S4RI0	2SC 1740S R		
D701		5EDSS133124000	1SS133T77		
C701	▲	5ECEI07D6I7000	10 uF/25V		ELECT CAP

REMARKS:

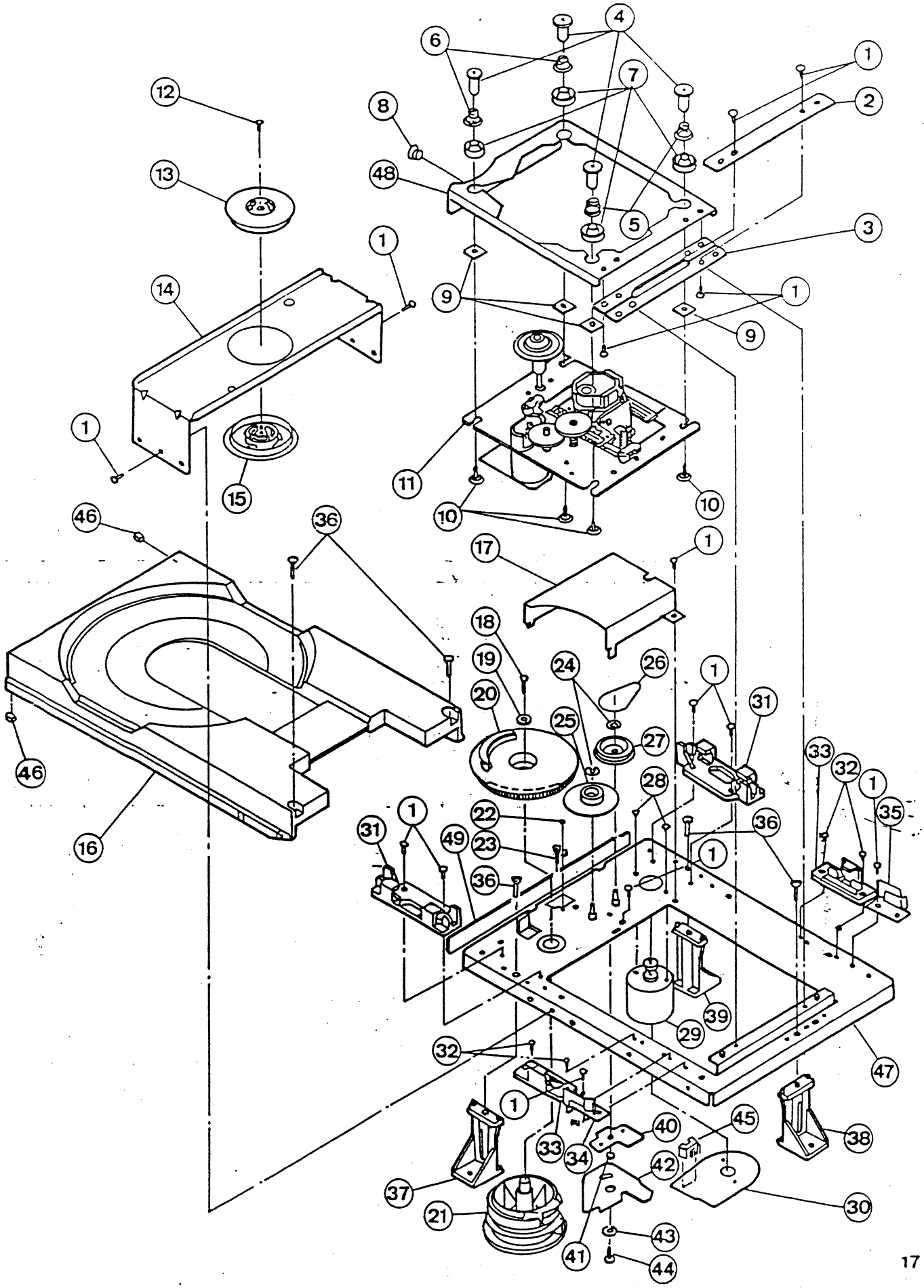
▲MEANS FOR UCD - 310R



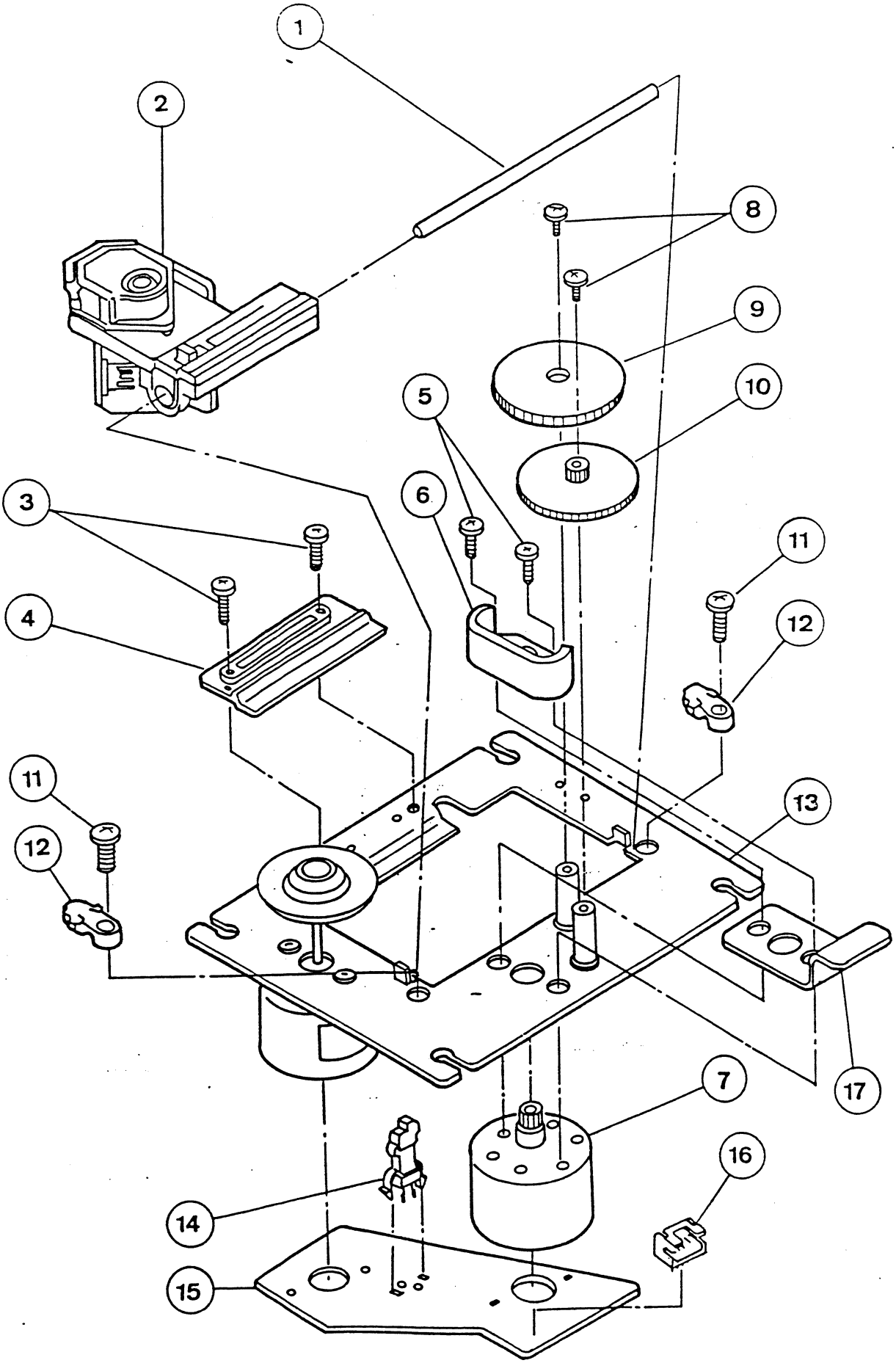
Parts No.	Parts cord	Description
	5GPBF151606000	POWER SWITCH P. C. BOARD
PF1	5GWA0960D02000	POWER SWITCH
C601	5ECC473FT09000	472 pF CERAMIC CAP
	5MEC1130D00000	AC PIN TERMINAL
	5MEC1181D02000	2P TERMINAL
	5MFC0037D02000	FUSE HOLDER
	5EFS1002lTl000	FUSE =FU3 100mA

EXPLODED VIEW OF MECHANISM ASS'Y

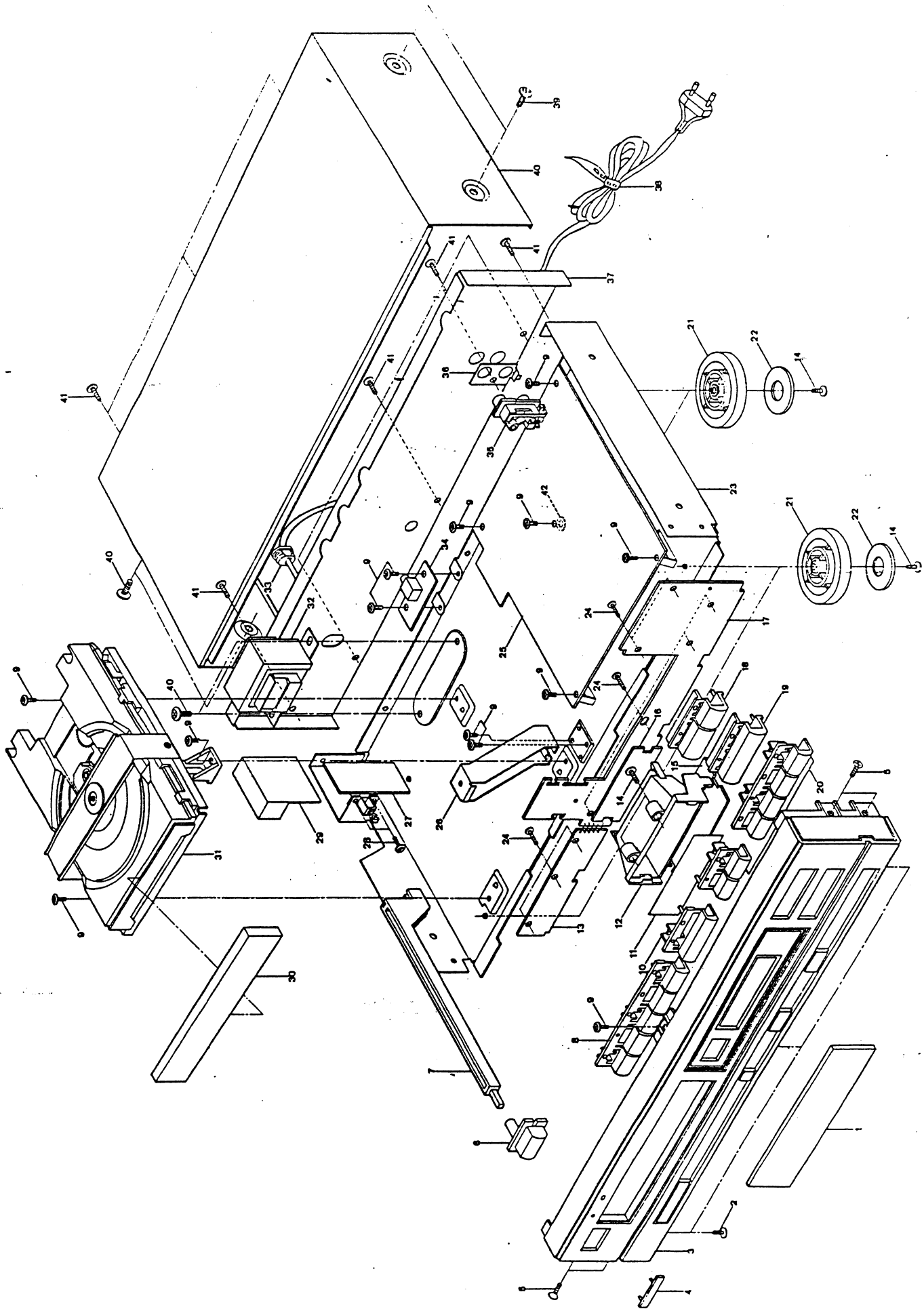
KSL-150



KSM-150



EXPLODED VIEW



NO.	PARTS CORD	DESCRIPTTON	QTY
1 .	■ 5MDS1378D46000	DISPLAY WINDOW	1
	▲ 5MDS1378D57000	DISPLAY WINDOW	
2 .	55310306HO5000	SCREW	3
3 .	■ 5MDC1661D24000	FRONT PANEL	1
	▲ 5MDC1661D35000	FRONT PANEL	
4 .	5MDT1412D08000	LOGO BADGE	1
5 .	55290308IO7000	SCREW	4
6 .	5MDK1834D05000	POWER KNOB	1
7 .	5MPF1634D02000	POWER KNOB BAR	1
8 .	5MDK1829D09000	CD BUTTON A	1
9 .	55310306IO8000	SCREW	13
10.	5MDK1831D15000	OPEN/CLOSE BUTTON	1
11.	5MDS1397D30000	LCD FILTER	1
12.	5MPF1737D06000	LCD HOLDER	1
13.	2CPXF1513B	CONTROL P. C. BOARD ASS'Y	1
14.	55310308IO2000	SCREW	6
15.	2CPXF1501B	LCD P. C. BOARD ASS'Y	1
16.	2CPXF1501C	LAMP P. C. BOARD ASS'Y	1
17.	■ 2CPXF1513A	CONTROL P. C. BOARD ASS'Y	1
	▲ 2CPXF1513A1	CONTROL P. C. BOARD ASS'Y	
18.	5MDK1533D19000	PLAY PAUSE BUTTON	1
19.	5MDK1832D12000	STOP BUTTON	1
20.	5MDK1830D18000	CD BUTTON B	1
21. 22.	5MPF1749D01000	FOOT ASS'Y	4
23.	5MSB2085D15000	BOTTOM CHASSIS	1
24.	55312610IO0000	SCREW	9
25.	2CPXF1501A	MAIN P. C. BOARD ASS'Y	1
26.	5MSB2090D11000	CHASSIS BRACKET	1
27.	2CPXF1516	POWER SWITCH P. C. BOARD ASS'Y	1
28.	55040306BO1000	SCREW	2
29.	5MPF1662D01000	SHIELD CASE	1
30.	5MDC1662D21000	CD DOOR	1
31.	5GCD7012094000	CD MECHA UNIT	1
32.	5GTP0243D07000	POWER TRANSFORMER	1
33.	5MFC0083D09000	AC CORD STOPPER	1
34.	■ 2CPXF1513C	REMOTE P. C. BOARD ASS'Y	1
	▲ 2CPXF1513C1	REMOTE P. C. BOARD ASS'Y	
35.	5MEJ1758D04000	2P JACK	1
36.	5MPF1752D03000	RCA JACK EARTH	1
37.	■ 5MSB2087D19000	REAR PANEL	1
	▲ 5MSB2087D20000	REAR PANEL	
38.	5EWP0261215000	AC CORD	1
39.	55040408HO6000	SCREW	6
40.	5MSB2088D05000	TOP COVER	1
41.	55310310HO4000	SCREW	9
42.	5MFW1119D07000	FIBER WASHER	1

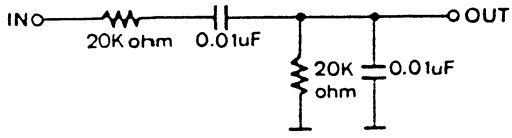
NOTE: ■ UCD-210 USE ONLY ▲ UCD-310R USE ONLY

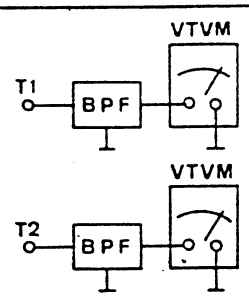
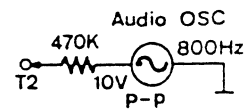
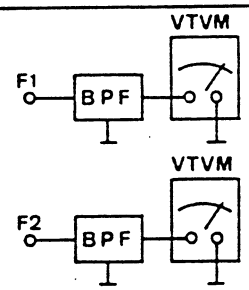
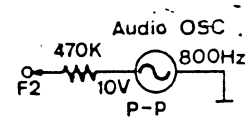
ADJUSTMENT

Notes on Adjustment

1. Turn off power before removing top cover
2. See Fig 1 & Fig 2 for adjustment.
3. Test disc is YEDS 18 TYPE 4 of SONY.
4. For adjustment the following filters is required.

Band Pass Filter (B.P.F.)



STOP	SUBJECT	INPUT	ADJUST FOR	MEASURE OUTPUT	ADJUST	DESCRIPTION
1	VCO	NON	VR5	Connect F counter to point CK and GND	F=4.3218 MHz ±10KHz	EFM short across G
2	TE Balance	Play disc	VR1	Connect scope to point T1 and GND	Adjust a=b, Scope: DC	T2 short across G
3	Focus offset	Play 7th music of DISC (No signal)	VR2	Connect scope to point RF and GND	Jitter is best	
4	Tracking Gain	Play 7th music of DISC (No signal)	VR4	Connect VTVM to point T1 through BPF and connect VTVM to point T2 through BPF	 Adjust to T1=T2+1.5dB	
5	Focus Gain	Play 7th music of DISC (No signal)	VR3	Connect VTVM to point F1 through BPF and connect VTVM to point F2 through BPF	 Adjust to F1=F2+2.5dB	
6	Repeat alignment step 4 and 5					

MAIN PCB (Fig.1)

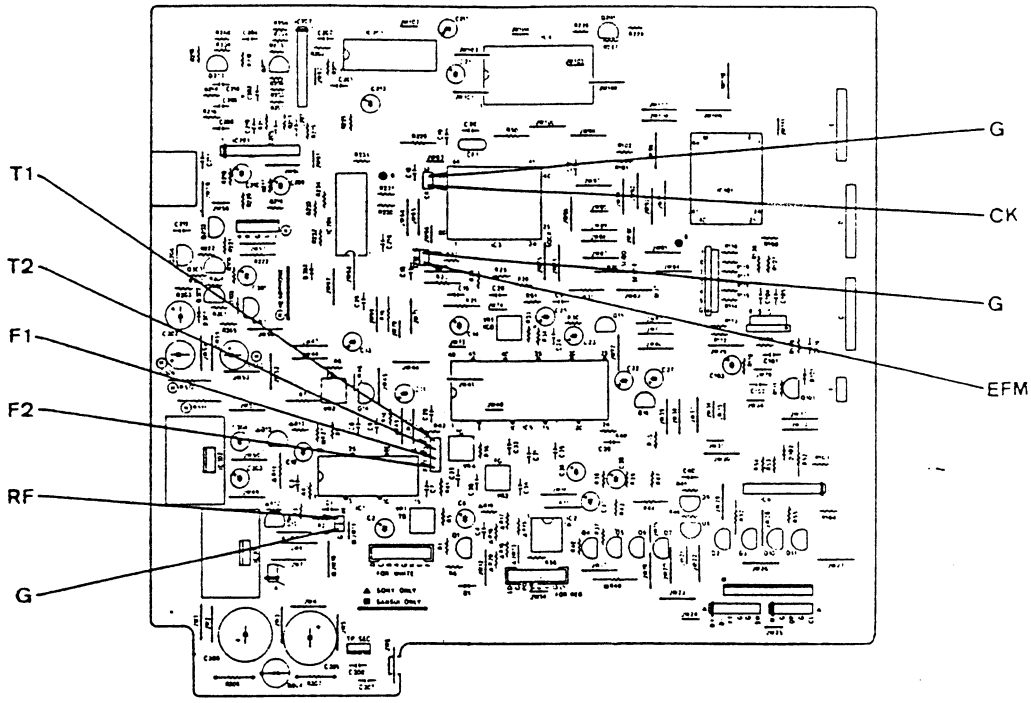
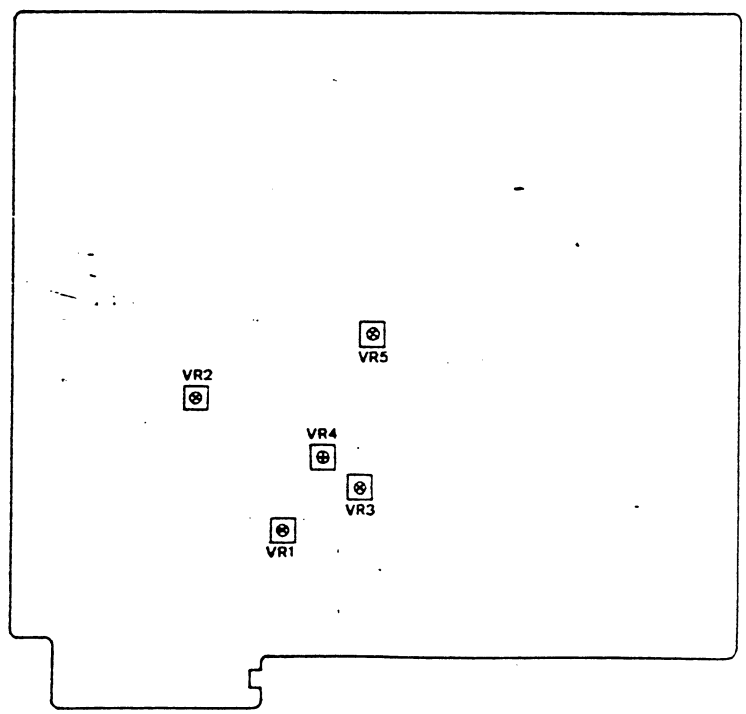
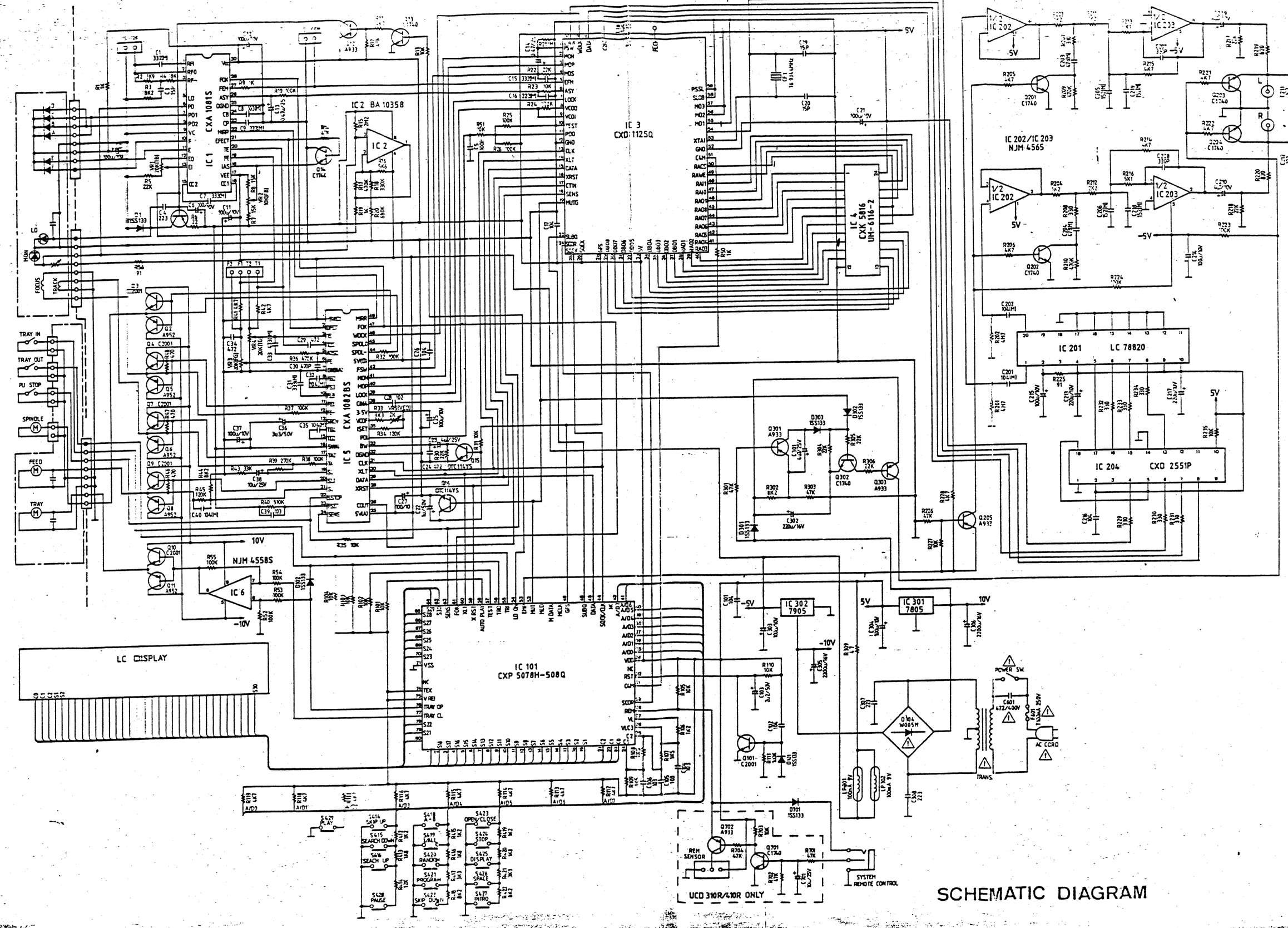


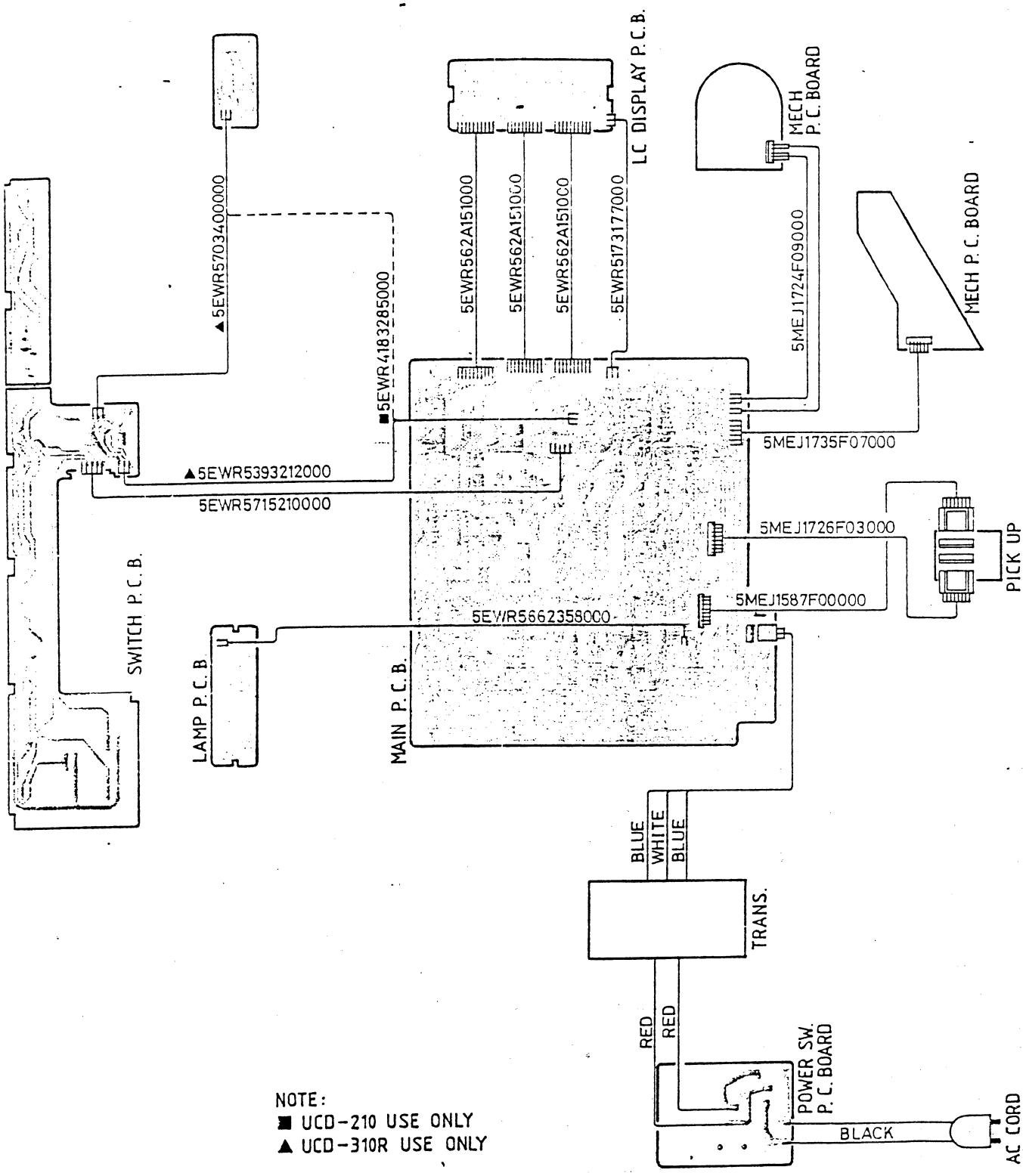
Fig.2





SCHEMATIC DIAGRAM

WIRING DIAGRAM



NOTE:
■ UCD-210 USE ONLY
▲ UCD-310R USE ONLY